REMARKS

A request for continued examination along with a request for a five month extension of time is submitted instead of an appeal brief.

Reexamination and reconsideration of the rejections are hereby requested.

Claims 1-13 are pending in this application and claim 1 has been amended herein. Claims 3 and 10 have been cancelled.

The single independent claim 1 has been amended to recite doping the layer during the vapor phase of the CVD process "with donors and acceptors whose ratio is selected to provide a desired temperature coefficient." Support for this language may be found in the specification on page 5 beginning at line 8. Here, the specification states that the "corresponding temperature coefficient is a strong function of the degree of dopant compensation, K, which is the ratio of donors to acceptors. Resistances between 10^6-10^8 ohms can easily be obtained and are optimally matched to the input impedance of the field effect transistor used in the preamplifier used to convert the change in thermistor resistance to a useful electronic signal. The generally accepted theory of operation of these thermistors in the 10mK to 4K temperature range is the variable range electron hopping mechanism."

Claim 1 as amended herein now requires that the epitaxial germanium layer be doped with donors and acceptors whose ratio is selected to provide a desired temperature coefficient to a dopant concentration selected so that at temperatures below about 4K, resistivity of the layer is due to hopping conduction of free carriers.

The pending claims stand rejected under 35 U.S.C. §103(a) as being unpatentable over Law, US Patent no. 3,173,814. This patent teaches controlled doping in an epitaxial vapor deposition process for making semiconductor materials. For example, in figs. 1 and 2 the patent

teaches introducing either acceptors or donors into various layers to create PNP or NPN structures. The patent also teaches introducing a dopant to control the resistivity of doped epitaxial films. It is extremely important to note, however, that the patent teaches introducing either donors or acceptors, but not both, into the CVD chamber. The examiner's attention is directed to Law at column 5 beginning at line 50. This section makes very clear that the silicon grown from vapors is doped from a source of phosphane (donor) or diborane (acceptor). Similarly this same paragraph teaches doping germanium using PH_3 or B_2H_6 to control resistivity.

There is absolutely no teaching or suggestion in Law of using both donors and acceptors, much less selecting the ratio of them to provide a desired temperature coefficient. Law merely suggests using either an acceptor or a donor to provide a resistivity and the patent is silent as to changes in resistivity as a function of temperature.

The remaining independent claim has been amended to require doping the epitaxial layer "with donors and acceptors whose ratio is selected to provide a desired temperature coefficient." This limitation clearly is not taught or suggested by Law that merely teaches doping with either a donor or an acceptor.

For the foregoing reasons, it is submitted that the claims as amended herein are patentable over the references of record and early favorable action is requested.

Respectfully submitted,

Sam Pasternack
Registration No. 29,576

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PATENT GROUP
CHOATE, HALL & STEWART
Two International Place
Boston, MA 02110